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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,539	09/16/2005	Shiro Torizuka	2005-1091A	1477
513 7590 05/13/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021				
EXAMINER				
CHEN, CHRISTINE				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,539

Applicant(s)

TORIZUKA ET AL.

Examiner

CHRISTINE CHEN

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 7/8/05

DETAILED ACTION

Claim Objections

1. Claim 1 objected to because of the following informalities:

The units in the equation for the rolling condition parameter Z do not cancel out.

In addition, no definition of "Q" is provided. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regards to claim 1, the description of the rolling process parameter Z and its relation to temperature must be rewritten as a positive active step (i.e. rolling of one pass or more... as opposed to "in the rolling process of...").

4. Claims 7 and 8 recite the limitation "rolling set temperature" in the last line.

There is insufficient antecedent basis for this limitation in the claims. Furthermore, its usage renders the claims indefinite. It is unclear what is meant to be conveyed in the phrase "rolling set temperature."

Meanwhile, examiner interprets the phrase as being a chosen temperature which limits the temperatures accordingly.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-10 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (JP 09-279233 Machine Translation).

Fujioka discloses a process of producing a high strength steel comprising the rolling of steel in one or more passes at a temperature of 500-700°C, a strain rate of $0.1-20\text{ s}^{-1}$ and a pass interval of 20 s or less, wherein the steel prior to the step of rolling has a ferrite microstructure (see abstract, [0023]-[0029], and claims 1 and 2).

In Tables 1-3, Fujioka summarizes the composition, processing conditions, and resultant properties of the steel, respectively (column headings in Tables 2 and 3 verified by on-site translator).

As seen in the processing conditions for steel no. 1, a rolling step comprising a single pass is made, wherein the temperature at the start of rolling is 680°C and the temperature at the end of rolling is 700°C. A temperature difference of 20°C is noted between the start and end of rolling. The resultant steel has a ferrite grain size of less than 1 micrometer. The calculated rolling condition parameter Z is about 14, which satisfies equation 1 (see Tables 2 and 3).

While Fujioka does not disclose the mathematical equation of Z (equation 1) in particular, Fujioka's method of rolling satisfies the given equation. A discovery that

certain mathematic expressions that could describe certain operating conditions of a process as recited in the instant claim does not patentably distinguish said claimed method from a prior art method that meets every manipulative step of the claimed method. The instant claims are *prima facie* obvious over the process of the applied reference since this prior art rolling process for producing high strength steel is operated within the temperature range, pressure range, strain and time range overlapping the claimed ranges.

Additionally, as seen in the processing conditions for steel no. 35, two passes are made in the rolling step, wherein the temperature at the start of rolling is 650°C and the temperature at the end of rolling is 660°C. A temperature difference of 10°C is noted between the start and end of rolling. The resultant steel has a ferrite grain size of less than 1 micrometer. The calculated rolling condition parameter Z is about 15, which satisfies equation 1 (see Tables 2 and 3).

With regards to the temperature limitation recited in claims 7 and 8, given the examiner's interpretation of "rolling set temperature" as provided in paragraph 4 above, it would have been obvious to one of ordinary skill in the art to choose a temperature to be the "rolling set temperature" and to control the temperature according to a prescribed mathematical equation relating the rolling set temperature to the rolling temperatures.

With regards to the total reduction area and the plastic strain as required by claims 9 and 10, since the steel composition of the prior art overlaps with that of the instant invention and the prior art steel is processed by substantially the same process as that being claimed, it is reasonably expected that the steel undergoing the process of

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the prior art would have a total reduction area and plastic strain in the same manner as being claimed. If there is any difference in the two, the difference must have been minor and obvious (see Table 1, abstract, and claims 1 and 2).

With regards to the limitation of temperature range to 400°-500°C as recited in claims 5 and 14-16, the method of Fujioka is to be applied within the temperature range of 500-700°C. It has been well settled in many court decisions that when a claimed temperature range is either inside, overlapped or close to the temperature range of a prior art process, a *prima facie* case of obviousness is established since it would have been obvious to one having ordinary skill in the art to construct a process comprising a temperature selected within the disclosed range.

With regards to the structure and grain size recited in claim 20, since the steel composition of the prior art overlaps with that of the instant invention and the prior art steel is processed by substantially the same process as that being claimed, it is reasonably expected that the steel undergoing the process of the prior art would have a structure and grain size in the same manner as being claimed. If there is any difference in the two, the difference must have been minor and obvious (see Table 1, abstract, and claims 1 and 2).

With regards to the reheating and cooling in the midst of rolling as recited in claim 13, it would have been obvious to one of ordinary skill in the art to reheat in the midst of rolling or to cool in the midst of rolling in order to control the temperature to be within a specific range.

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7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (JP 09-279233 Machine Translation) combined with Sakata (JP 2001-214214 English abstract).

Fujioka does not disclose multidirectional processing as shown in paragraph 6 above.

In the English abstract of JP 2001-214214, Sakata discloses an apparatus for the thermo mechanical treatment of steel, wherein said apparatus includes a multidirectional roll stand for the rolling step.

It would have been obvious to one of ordinary skill in the art to use the multidirectional rolling of Sakata in the process of Fujioka in order to introduce a large amount of plastic strain in an extensively wide region of the material.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka (JP 09-279233 Machine Translation) combined with Saito (JP 60-200915 English Abstract).

Fujioka does not disclose a controlling of rolling speed and draft of each pass as shown in paragraph 6 above.

In the English abstract of JP 60-200915, Saito discloses a process comprising the rolling of steel wherein the rolling speed and draft are controlled to improve the steel structure.

It would have been obvious to one of ordinary skill in the art to modify the process of Fujioka with the control of rolling speed and process as disclosed by Saito in order to improve the structure of the resulting steel.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-20 are provisionally rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claim 1-20 of copending Application No. 10/557416. Although the conflicting claims are not identical, they are not patentably distinct from each other because both comprise a warm rolling method for manufacturing a steel material having a grain size of 3 micrometers or less, which comprises rolling of one pass or more in a temperature range of 350 to 800°C.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE CHEN whose telephone number is

(571)270-3590. The examiner can normally be reached on Monday-Friday 8:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

CC